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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/812,582

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Hitoshi Ogawa

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EXAMINER

WONG, KIN C

ART UNIT

PAPER NUMBER

2651

DATE MAILED: 01/27/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/812,582

Applicant(s)

OGAWA ET AL.

Examiner

K. Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/176,689.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

This is a response to communicate filed on 12/3/02.

Claim Objections

1. Claim 5 is objected under 37 CFR 1.75 (a) as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5, line 11; the phrase "disposed" is not clear because of the context of the phrase. The examiner has interpreted the context of the phrase "disposed" as a "location" for this office action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5, line 11; the phrase "disposed" is not clear because of the context of the phrase. The examiner has interpreted the context of the phrase as a "location" for this office action.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims (1-12 and 14-18) are rejected under 35 U.S.C. 102(b) as being anticipated by Best et al (H1221).

Regarding claim 1: Best et al discloses a disk drive (element 300 in figure 18 of Best et al) apparatus mounting socket including:

a socket (element 310 in figure 18) portion which supports a disk drive apparatus;

a lead portion (element 320 in figure 18) which is connected to the disk drive apparatus supported by the socket portion; and

a terminal unit which is electrically connected to the lead portion and to circuits on a board (see col. 22, lines 28-49 and the depiction on figure 17 of Best et al).

Regarding claim 2: Best teaches a vibration (shock) absorbing member which contacts the disk drive apparatus (in col. 22, lines 31-33 of Best et al).

Regarding claim 3: Best et al discloses a disk drive apparatus which is connectable to an information processing unit (as depicted in figure 1 of Best et al), the disk drive apparatus including:

a connecting unit which connects the disk drive apparatus to the information processing unit (as depicted in figure 15 of Best et al); and

an interface unit which controls the disk drive apparatus in response to a control signal, a data bus signal, and an address bus signal which are generated by the information processing unit and are inputted to the disk drive apparatus from the information processing unit via the connecting unit (see col. 19, line 22 to col. 20, line 25 of Best et al).

Regarding claim 4: Best et al teaches wherein the information processing unit includes a memory card connector and wherein the connecting unit is connectable to the memory card connector of the information processing unit (in col. 21, lines 38-47 of Best et al).

Regarding claim 5: Best et al depicted the anatomy of a disk drive that including;
a disk which is a recording medium;
a head which writes data to and/or reads data from the disk; a positioning unit which positions the head at a data access position on the disk;
a rotating unit which rotates the disk;
a control unit which includes an electronic circuit; and
a board on which the control unit is disposed (located)
(in figures 10a, 10b and 11 and see col. 19, line 39 to col. 20, line 14 of Best et al).

Regarding claim 6: Best et al teaches wherein the control unit generates a read/write clock having a frequency which changes depending on the data access position at which the head is positioned, and, wherein the head writes data to and/or reads data from the disk in response to the read/write clock (in col. 20, lines 4-14 of Best et al).

Regarding claim 7: Best et al teaches wherein the rotating unit rotates the disk at a speed which changes depending on the data access position at which the head is positioned (in col. 19, lines 39-63 and col. 18, line 52 to col. 19, line 21 of Best et al).

Regarding claim 8: Best et al depicted wherein the positioning unit (VCM - element 132 in figure 10b) moves the head in a rotary motion about a rotary axis by applying a rotary force to the head such that a center of the rotary force is aligned with the rotary axis (in figure 11 and see col. 20, line 51 to col. 21, line 14 for details).

Regarding claim 9: Best et al teaches wherein the connecting unit includes power supply lines which supply power from the information processing unit to the disk drive apparatus (in col. 22, lines 40-65 of Best et al).

Regarding claim 10: the limitations wherein the power supply lines include an analog power supply lines which supply power to analog circuits of the disk drive apparatus, and, digital power supply lines, independent of the analog power supply lines, which supply power to digital circuits of disk drive apparatus are considered inherent because Best describes the similar lines distribution (in col. 22, line 40 to col. 23, line 13 of Best et al).

Regarding claim 11: Best et al teaches wherein the rotating unit includes a rotary shaft, and, wherein the board (The board or plate for supporting the spindle assembly is considered inherent – see col. 20, lines 26-34 of Best.) includes a support that supports the rotary shaft (in col. 21, lines 15-37 and shown in figure 14 of Best et al).

Regarding claim 12: Best depicts wherein at least one of the connecting unit and the interface unit is disposed on the board (in figure 15 of Best).

Regarding claim 14: Best et al disclose a disk drive apparatus (as depicted in figure 11) including:

- a disk-type data storage medium (element 160 in figure 11);

- a rotating unit (element 162 in figure 11) which rotates the disk-type data storage medium;

- a head (element 170a in figure 11) which reads data from the disk-type data storage medium, and writes data to the disk-type data storage medium;

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a head moving unit (element 173a of figure 11 or as depicted in figure 13a) which moves the head;

a read/write channel (element 128 in figure 10a), coupled to the head, which receives, from the head, the data read from the disk-type data storage medium by the head, and supplies, to the head, the data written to the disk-type data storage medium by the head (see depiction of figure 10a);

a disk controller circuit (element 122 in figure 10a), coupled to the read/write channel, which processes data; and

an interface, coupled to the disk controller circuit, which connects the disk drive apparatus to an external device, and has a shape which prevents a wrong connection of the disk drive apparatus to the external device (see col. 22, line 50 to col. 23, line 10).

Thus, the limitations of the claim are considered satisfied because Best et al discloses a disk drive connection with wrong connection prevention.

Regarding claim 15: Best et al discloses a disk drive apparatus (as depicted in figure 15) including:

a disk drive unit (elements 230a-230d I figure 15);

a support (element 231 in figure 15) which supports the disk drive unit; and

a vibration (or shock) absorber (see col. 21, lines 57-65 of Best et al) disposed between the disk drive unit and the support;

wherein the disk drive unit (as depicted in figure 11) includes: a disk-type data storage medium (element 160 in figure 11); a rotating unit (element 162 in figure 11) which rotates the disk-type data storage medium; a head (element 170a in figure 11) which reads data from the

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disk-type data storage medium, and writes data to the disk-type data storage medium; a head moving unit (as depicted in figure 13a) which moves the head; a read/write channel (element 128 in figure 10a), coupled to the head, which receives, from the head, the data read from the disk-type data storage medium by the head, and supplies, to the head, the data written to the disk-type data storage medium by the head; and a disk controller circuit (element 122 in figure 10a), coupled to the read/write channel, which processes data. Thus, the limitations of the claim are considered satisfied because Best et al discloses a disk drive with vibration or shock absorber on a support.

Regarding claim 16: Best et al discloses a disk drive apparatus (as depicted in figure 11) including:

- a disk-type data storage medium (element 160 in figure 11) ;

- a rotating unit (element 162 in figure 11) which rotates the disk-type data storage medium;

- a head (element 170a in figure 11) which reads data from the disk-type data storage medium, and writes data to the disk-type data storage medium;

- a head moving unit (as depicted in figure 13a) which moves the head;

- a read/write channel (element 128 in figure 10a), coupled to the head, which receives, from the head, the data read from the disk-type data storage medium by the head, and supplies, to the head, the data written to the disk-type data storage medium by the head;

- a disk controller circuit (element 122 in figure 10a), coupled to the read/write channel, which processes data; and

a single connector which connects the disk drive apparatus to an external device, has a function of preventing a wrong connection of the disk drive apparatus to the external device, and supplies signals and power for operating the disk drive apparatus from the external device to the disk drive apparatus (see col. 22, line 50 to col. 23, line 10). Thus, the limitations of the claim are considered satisfied because Best et al discloses a disk drive connection with wrong connection prevention.

Regarding claim 17: Best et al discloses a disk drive apparatus (as depicted in figure 11) including:

a disk drive unit having a long side and a short side, the long side being longer than the short side (as depicted in figure 11); and

an interface which exchanges data between the disk drive unit and an external device, the interface being disposed on the long side of the disk drive unit (as depicted in figure 18);

wherein the disk drive unit includes:

a disk-type data storage medium (element 160 in figure 11);

a rotating unit (element 162 in figure 11) which rotates the disk-type data storage medium;

a head (element 170a in figure 11) which reads data from the disk-type data storage medium, and writes data to the disk-type data storage medium;

a head moving unit (element 128 in figure 10a) which moves the head;

a read/write channel (element 128 in figure 10a), coupled to the head, which receives, from the head, the data read from the disk-type data storage medium by the head, and supplies, to the head, the data written to the disk-type data storage medium by the head; and

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a disk controller circuit (element 122 in figure 10a), coupled to the read/write channel, which processes data. Thus, the limitations of the claim are considered satisfied because Best discloses an interfacing connection that located at the long side of the disk drive.

Regarding claim 18: Best discloses an adapter which connects terminals of an interface of a disk drive apparatus to terminals of a connector of an external device; wherein the terminals of the interface of the disk drive apparatus include terminals for supplying signals and power for operating the disk drive apparatus to the disk drive apparatus; and wherein a configuration of the terminals of the interface of the disk drive apparatus is different from a configuration of the terminals of the connector of the external device (in col. 22, line 28 to col. 23, line 13 of Best et al or see element 169 in figure 11, element 232 in figure 15 and element 320 in figure 18 of Best). Thus, the limitations of the claim are considered satisfied because Best et al discloses a mismatch interface prevention to the connecting interface links.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Best et al (H1221) in view of Morehouse et al (5442266).

Regarding claim 13: the reason for Best et al is stated in above rejections. Best et al is silent on capability of a disk with an outer diameter of about 1.7 inches (or 45 mm). Morehouse

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et al is relied on for the teachings of a disk diameter about 1.7 inch (45 mm) (see last line of abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the disk drive apparatus with a drive for 1.7 inch (45 mm) disk as taught by Moehouse et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to provide an optimize estate in the PC and a low power consumption in the PC.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cooper et al (5257151); Sliwa, Jr. (5307311); Mizoshita et al (5400192); and; Shafe (6035429) are cited for pc board mounting disk drives.


9. Any inquiry concerning this communication should be directed to K. Wong whose telephone number is (703) 305-7772.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Hudspeth, can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service whose telephone number is (703) 306-0377.

kw

28 Oct 02


DAVID HUDSPETH
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